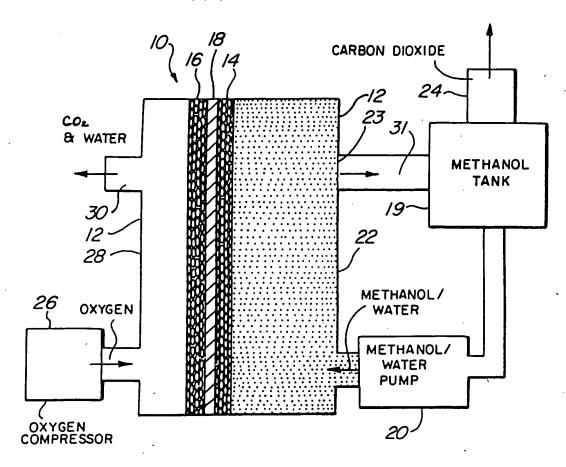
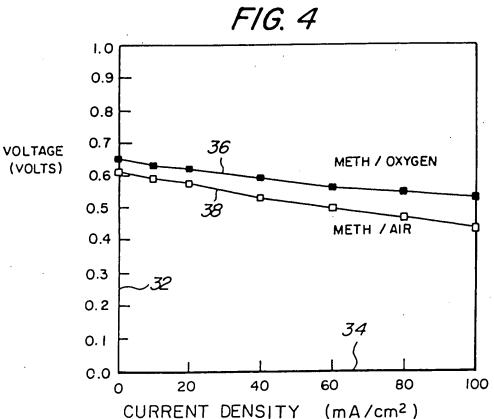
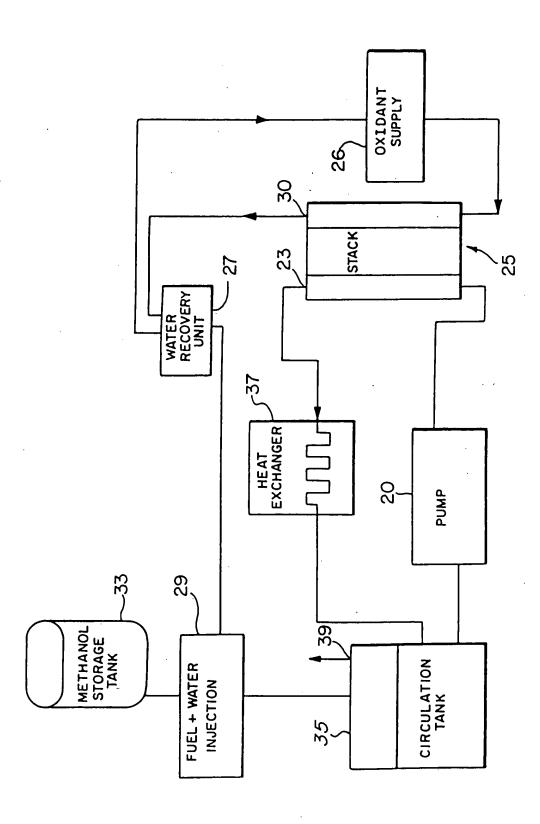
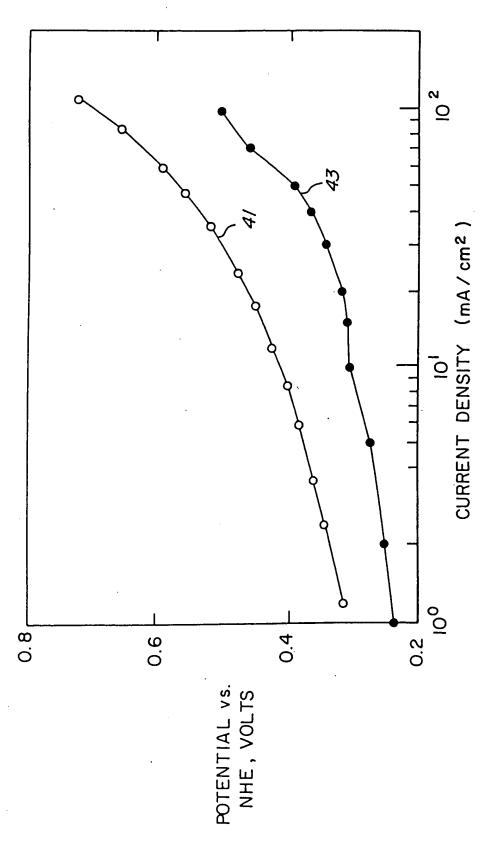
FIG. 1





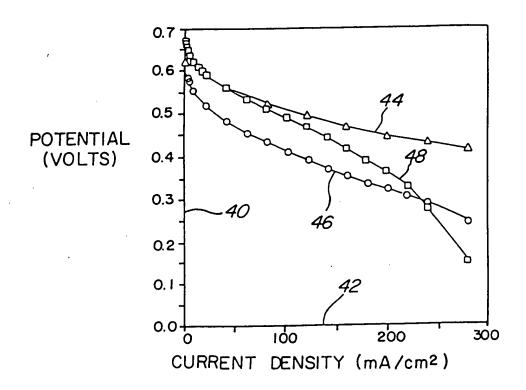


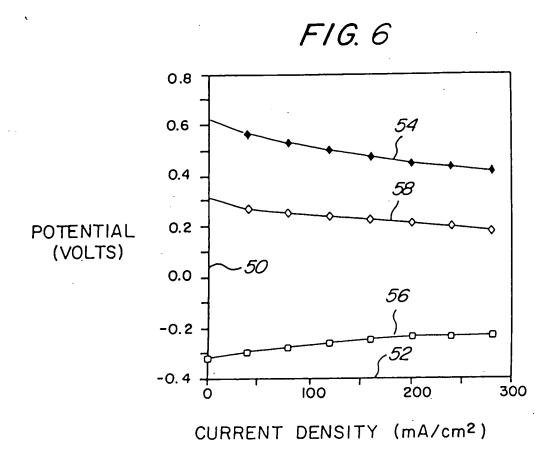
F1G. 2



F16.3

FIG. 5





302

IMMERSE THE CARBON ELECTRODE STRUCTURE IN 1% SOLUTION OF NAFION IN METHANOL FOR ABOUT 5 MINUTES TO ACHIEVE IMPREGNATION OF THE NAFION INTO THE ELECTRODE TO A LOADING OF  $0.1-0.5\,\text{mg}\,/\,\text{cm}^2$ .

304

REMOVE ELECTRODE FROM SOLUTION AND DRY IN VACUUM.

F1G. 7

F/G. //

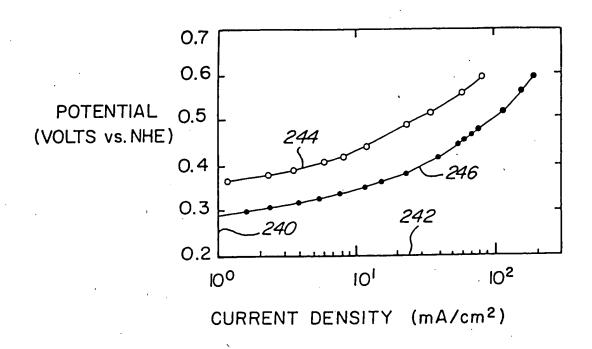
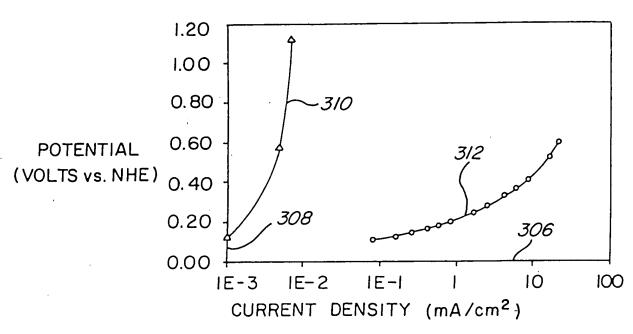


FIG. 8



PREPARE CARBON ELECTRODE STRUCTURES FROM A MIXTURE OF 200m2/g HIGH SURFACE AREA CARBON PARTICLES AND TEFLON BINDER (15%) APPLIED TO A FIBER-BASE CARBON PAPER.

-202

PREPARE A BATH OF HYDROGEN
HEXACHLOROPALTINATE AND POTASSIUM
PENTACHLOROAQUORUTHENIUM WITH A METAL
ION CONCENTRATION IN THE RANGE OF QOI-QO5M
DISSOLVED IN 1M SULFURIC ACID.

-204

ADD PERFLUOROOCTANESULFONIC ACID TO BATH WITH A CONCENTRATION IN THE RANGE OF 0.1-1.0g l-1

<sub>1</sub>206

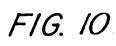
POSITION THE CARBON ELECTRODE IN THE BATH ALONG WITH A PLATINUM ANODE.

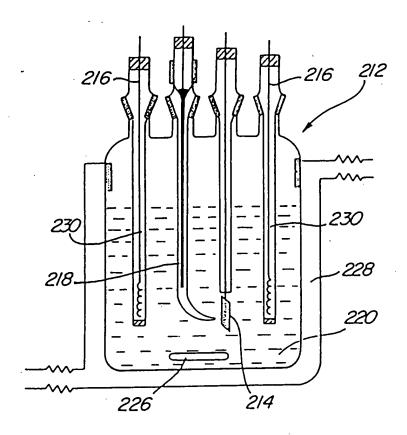
208

APPLY A VOLTAGE BETWEEN THE CARBON ELECTRODE AND THE ANODE FOR ABOUT 5-10 MINUTES TO ACHIEVE ELECTRODEPOSITION OF PLATINUM-RUTHENIUM TO A LOADING OF ABOUT 5 mg/cm<sup>2</sup>.

210

REMOVE CARBON ELECTRODES FROM BATH AND WASH IN DEIONIZED WATER.





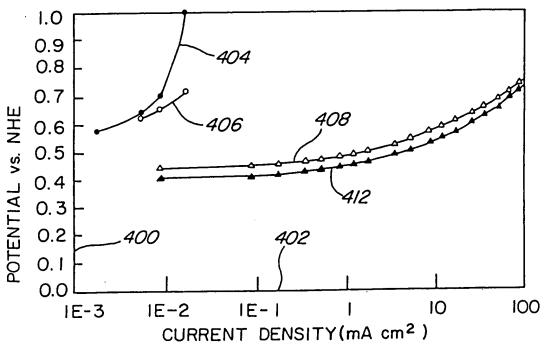


FIG. 12

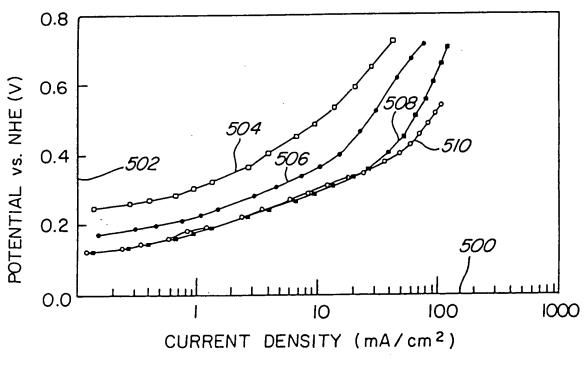
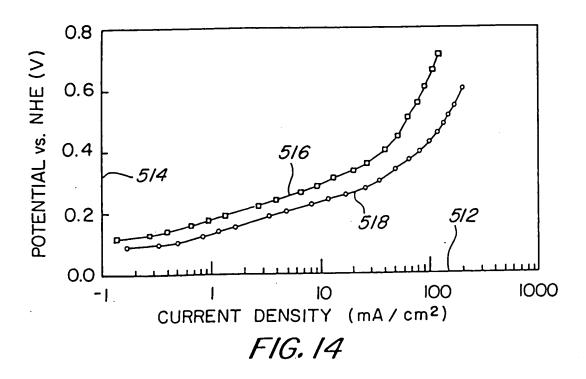
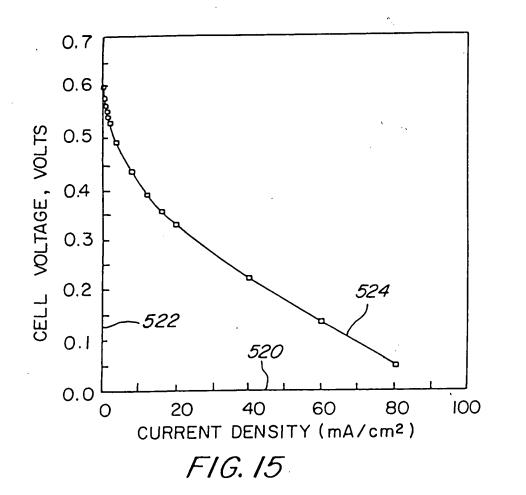
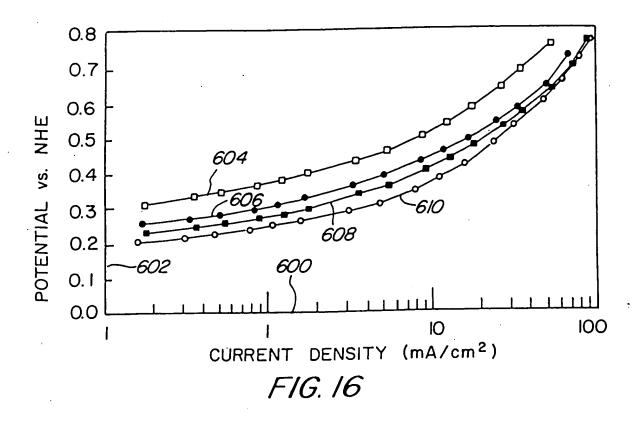
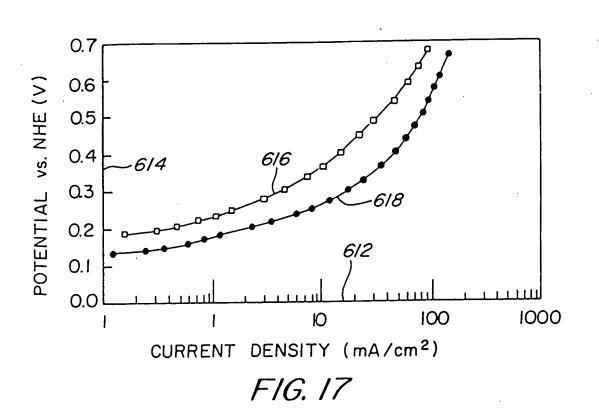


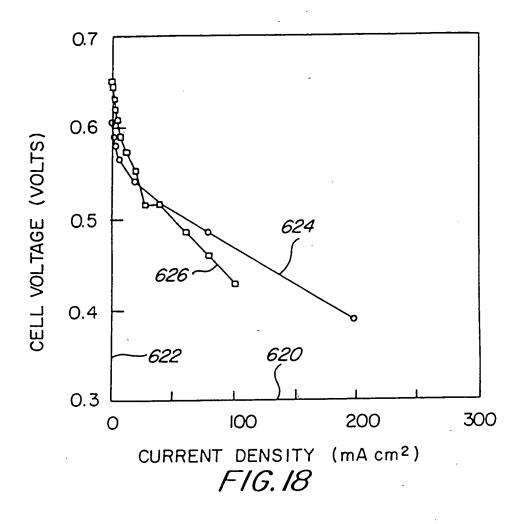
FIG. 13

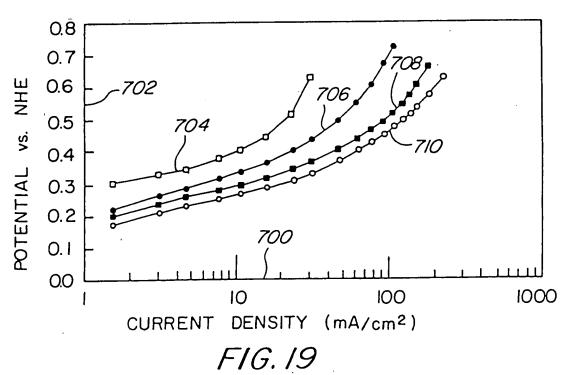














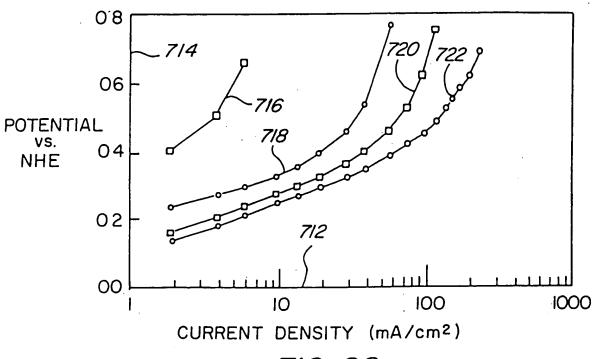


FIG. 20

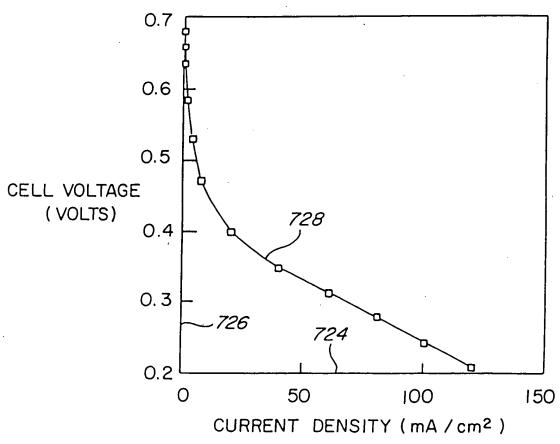


FIG. 21